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ABSTRACT

The measurement of college impact on students has received much attention over the past two decades. To examine stability and change in personality, vocational orientation, study habits, and attitudes of college students from freshman to senior year, two samples of undergraduates (N=51) were tested as freshmen and as seniors. Students completed the Jackson Personality Inventory (JPI), the Sixteen Personality Factor (16PF) Test, the Strong-Campbell Interest Inventory (SCII), and the Survey of Study Habits and Attitudes (SSHA). An analysis of the results showed a general overall pattern of continuity for personality characteristics and vocational interests from freshman to senior year. Change occurred on only two dimensions of the 16PF, with students becoming more introspective and independent with age. The JPI showed students becoming more intellectually curious, inquisitive, and spirited. In both samples growth occurred in work methods, study habits, attitude toward teachers, acceptance of educational ideals, and overall study orientation. These findings suggest that counselors should concentrate on services to freshmen, since they experience the most social, emotional, and academic change as they assimilate and accommodate to the college milieu. (BL)

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Continuity and Change in Personality, Vocational Orientation, and Study Habits & Attitudes of College Students

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Abstract

In two longitudinal studies the Jackson Personality Inventory(JPI), Sixteen Personality Factor Test(16PF), Strong-Campbell Interest Inventory(SCII), and Survey of Study Habits and Attitudes(SSHA) were administered to 51 college students as freshmen and then as seniors. T-tests for paired data revealed a general overall pattern of continuity for personality characteristics and vocational interests from freshman to senior year, and significant growth in study habits and attitudes. The implications of the findings for the counseling of college students, particularly freshman, are discussed.

Continuity and Change in Personality, Vocational Orientation, and Study Habits & Attitudes of College Students

The measurement of college impact on students has received much attention over the past two decades. Although hundreds of studies have explored the relationships among personality and attitudinal variables and various aspects of student development, longitudinal studies which measure change in personality, vocational interest, and study habits and attitudes (while following the same group of students over the four year college period) have been scarce. Moreover, there are contradictory findings reported regarding whether personality and vocational interest change or remain stable during the four year college experience. Also, studies which report personality changes are often not in agreement as to what personality variables are subject to change or stability. For example, Graffam(1967) using the 16PF reported changes with no sex differences on ten of the sixteen personality dimensions. Significant increases were reported in factors B(intelligence), E(assertion), L(suspiciousness), N(astuteness), Q(liberalism), and Q2(self-sufficiency) while factors G(conscientiousness), I(sensitivity), O(apprehension), and Q4(tension) significantly decreased. Nichols(1967) also selected the 16PF to measure personality change and found, in accordance with Graffam(1967), an increase in factors B, E(women only), L(women only), Q1(men only), and Q2 while a significant decrease was reported for factor G. However, in addition to sex differences, Nichols also reported significant increases in I(men only) and M(imagination; men only), and significant decreases in factors C(emotional stability) and F(enthusiasm; women only).

In a cross-sectional study with the 16PF, Cattell(1973) reported developmental norms for males and females from ages 10-60. During late adolesence (roughly age 20) factors E, H, I, and N remain relatively stable. Factors A, B, G, and M appear to increase while factors F, L, and O appear to decrease for both sexes. In addition, factors C and Q3 appear to increase for men only while Q2 appears to increase for women only. Also, Q4 is stable for women but it decreases for men.

Although the aforementioned research sheds some light on the relationship between selected personality variables and college attendance, it is difficult to conclude that the college experience itself influenced the stated changes. It appears that some personality traits change over the college years, but extraneous-variable confounds, most notably universal developmental processes, prevent direct casual conclusions. Cattell & Vaughan(1973) added a control group of non-college students in order to draw casual conclusions about the effects of college on student personality development. They revealed an increase in both groups in factors B, I, M and in the second order factors of corterria (the ability to think through problems) and radicalism. There was only one significant decrease, factor L. No results concerning the other factors were reported. Since factor B, L, and radicalism were significant in the same direction in both groups, the researchers concluded that these changes were age trends common for the transition from adolesence to young adulthood. Secondly, factors I, M, and cortertia increased at a higher rate in the college group than in the non-college group, suggesting that college might facilitate such changes. In some instances these findings agree with the results from the non-control group studies, but in others no such agreement exists. One explanation might

be the New Zealand sample employed in the Cattell & Vaughan(1973) study which might interfere with an adequate generalization of the results to American colleges and students. A comparison of the studies using the 16PF can be found in Table 1.

Insert Table 1 about here

In contrast to the studies using the 16PF which suggest personality change during the college years, Costa & McCrae(1980) in longitudinal studies using self-report personality scales, including the 16PF and Guilford-Zimmerman Temperament Survey, obtained data suggestive of personality stability. Mortimer & Lorence(1980) studied the self-ratings of students in a 13 year longitudinal study and reported a pattern of persistence rather than change on personality dimensions such as well-being, sociability, self-doubt, and unconventionality. Although the research methods of these two studies are questionable(e.g. self-report scales), they suggest that certain personality traits may be indeed stable and consistent over time.

There is a paucity of longitudinal studies which investigate the degree of change in vocational interest, and in study habits and attitudes during college. Navane & Walker(1979) used the Strong-Campbell Interest Blank(SVIB) to measure vocational interest change, and reported significant changes in 16 of 22 basic interest scales, 38 of 54 occupational scales, and 4 of 8 nonoccupational scales during the first two years of college. These reported changes in vocational interest contradict Campbell & Harmon's(1981) assertion that theme and occupational scores are generally stable over a three year college period. Longitudinal

research investigating study habit and attitude change over the college period appears lacking in the literature. In fact, Holtzman (1982) author of the SSHA stated in a personal communication that he knows of no longitudinal studies.

The purpose of this study was to investigate the degree of stability and/or change from freshman to senior year with respect to three dimensions: (a) personality,(b) vocational interest, and (c) study habits and attitudes.

METHOD

Subjects. Two samples of undergraduate students from a small liberal arts college located in eastern Pennsylvania were randomly selected for the study. The first sample consisted of test protocols of 23 students(approximately 1/3 of the class of 1982), and the second sample consisted of test protocols of 29 students(approximately 1/3 of the class of 1983). The college is predominantly female residential which is reflected in the two samples. Also, the sample distributions are balanced by academic major including education, liberal arts, and business majors.

INSTRUMENTATION. The Sixteen Personality Factor Test(16PF)

The 16PF(Cattell, 1970) is a factor analytically derived instrument which consists of sixteen functionally independent and psychologically meaningful personality dimensions such as intelligence, assertiveness, emotional stability, and spnotaneity. The test manual reports parallel-form reliability in the 50's and test-retest reliability after a week or less around .80.

The Jackson Personality Inventory (JPI)

The JPI (Jackson, 1978) is a factor analytically derived instrument which yields scores on sixteen primary dimensions of personality such as anxiety, self-esteem, conformity, and value orthodoxy. The test manual reports that in two studies median internal consistency reliabilities(Bentler's Theta) range

from .75 to .95.

The Strong-Campbell Interest Inventory(SCII)

The SCII (Campbell & Harmon, 1981) is a vocational interest inventory which yields scores on six general occupational scales such as realistic, artistic, social, conventional, enterprising, and investigative. Median test reliability is reported in the high 80's over a three year period.

The Survey of Study Habits and Attitudes(SSHA)

The SSHA (Holtzman & Brown, 1967) is an instrument designed to measure a student's study methods, teacher-approval, education acceptance, and delay avoidance with regard to assignments. Test-retest reliability over a fourteen week period is in the high 80's for the scales.

PROCEDURE.

In the fall of 1978 the majority of the freshman class took the 16PF, SCII, and SSHA. The same tests were readministered in the spring of 1982 to a representative sample of 23 seniors who had completed the testing in their freshman year. The first sample consisted of data from the class of 1982. A replication study was conducted with the class of 1983, however, instead of the 16PF as the personality instrument the JPI was employed. In the fall of 1979 the freshman class took the JPI, SCII, and SSHA. The same tests were readministered in the spring of 1983 to representative sample of 29 students. Thus, the second sample consisted of data from the class of 1983.

RESULTS.

I. The results of the statistical analysis (paired t-test) of the 16PF scales from freshman to senior year are reported in Table 2.

Insert Table 2 about here

As can be seen from Table 2, an overall pattern of consistency rather than change occurred from freshman to senior year on the sixteen personality dimensions. Change occurred on only two dimensions; factor F(introspection) scores became significantly lower and factor Q2(self-sufficiency) scores became significantly higher. In other words, students became more introspective and independent from freshman to senior year as measured by the 16PF.

The results of the paired t-test of the JPI dimensions are reported in Table 3.

Insert Table 3 about here

Statistical significant pre-post findings occurred on anxiety(ANX), breadth of interest(BDI), self-esteem(SES), energy level(ENL), risk-taking(RKT), and infrequency(INF) scales. Of the six scales only the first five measure personality characteristics; the infrequency scale detects nonpurposeful responding. Althpugh there was a significant change on this scale, from students leaving 1 item blank to two, the frequency of careless responding remained insufficient to generate concern. Students became more intellectually curious, inquisitive, and spirited from freshman to senior year. Also, students became more confident in dealing with others, were more likely to risk, and were less anxious or tense. It should be noted that two scales, innovation(INV) and interpersonal affect(IAF) approached significance.

II. The pre-post findings of the SCII for the two samples are reported in Table 4.

Insert Table 4 about here

Students from sample 1 showed no significant change(paired t-test) in their selection of vocational interest areas. That is, freshmen who entered college

with a high score on the artistic factor left college with a high score on this factor.

A significant increase was found on the enterprising scale in sample 2 suggesting that students became more interested in business vocations from freshman to senior year. Aside from this one significant finding, however, overall vocational values were quite stable over the four year period in both samples. Basic vocational interests had not changed significantly from the time students entered college.

III. The results from the pre-post analysis of the SSHA are reported in Table 5.

Insert Table 5 about here

In both samples, statistical significant-growth occurred on all aspects of the SSHA. As can be seen from Table 5, strong consistency occurred between the two samples. Students became more prompt in completing academic assignments, more accepting of educational objectives, and opinions of teachers and their classroom behavior improved. In addition work methods and study habits became more efficient from freshman to senior year.

DISCUSSION.

The most pervasive change from freshman to senior year was in study habits and attitudes. In both samples, significant growth occurred in work methods, study habits, attitudes toward teachers, acceptance of educational ideals, and overall study orientation. The two samples were strinkingly similar in their scores on all of the dimensions of the SSHA.

Although students from sample 2 became more interested in business vocations from freshman to senior year, overall value orientation toward the world of work

did not change dramtically. Freshmen who entered college with a high score in a particular vocational interest area, left college with a high score in that area. This finding generally corroborates Campbell & Harmon's (1981) finding that despite some shifting theme and occupational scores are stable over time. One possible explanation for the increased interest in business values in sample 2 might be because starting with this freshman class the business program was instituted at the college. Students probably placed a higher value on business careers as the business program became more established on campus.

An overall pattern of consistency more than change was found with respect to selected personality factors measured by the 16PF and JPI. Out of the fifteen personality factors on the JPI, only five changed significantly during the college years. Students became more able to risk, intellectually serious, self-confident, and less anxious from freshman to senior year. Out of the sixteen personality factors on the 16PF only two significant changes occurred. This finding of only two personality changes on the 16PF is in contrast to much of the literature which shows a general pattern of change rather than stability. Graffam(1967) reported ten changes, Cattell & Vaughan(1973) reported four, and Nichols(1967) found seven.

A summary of our research findings with the 16PF to measure personality change is reported in Table 1. The decrease in the F factor was substantiated by Cattell(1973) and Nichols(1967). The increase in Q2 was substantiated by Cattell(1973), Graffam(1967), and Nichols(1967). Our results showing no change are consistent with previous findings for factors A,H, and Q3. In contrast to the three previous studies, we did not observe an increase in factor B. For the remaining factors the evidence is mixed. Table 6 reports a summary of the factors and their direction of change.

Insert Table 6 about here

It appears that factors A,H, and Q3 are not likely to change during the college years. These traits are probably stable. Factors B, E, N, M, Q1, and Q2 are likely to increase or not change while factors C, F, G, and Q4 are likely to decrease or not change. The results are mixed for factors I, L, and O, possibly due to reliability problems in assessment. Further research using, perhaps, other personality measurements which are not factor analytically based seems necessary to adequately resolve the question of personality change or stability during the college years.

The findings of the study provide some normative data with regard to study habits, attitudes toward college, and vocational interest which can be utilized in the counseling of college students, especially freshman. Freshman with academic difficulties which stem from deficient study methods and skills can be relatively reassured that their skills are likely to improve over time given sufficient effort. This could reduce anxiety in some students, and quite possibly, result in academic improvement. Similarly, students who may be negativistic about college can be reassured that their attitudes are subject to change during the four-year college experience. Negativistic students are likely to become more accepting of college ideals and practices if they exert and effort to persist. For first-generation students, who are often ambivalent about intellectual pursuits, it might be comforting for them to know that they are likely to become more attracted and receptive to academia over the college period.

For most freshman the first year at college is a major transition. Students experience social, emotional, and academic changes as they assimilate and accommodate to the college milieu. Some students may find it comforting that their overall value orientation toward the world of work will not change dramtically during college. Despite a student's switch from one major to another, his under-

lying vocational values remain relatively consistent over time. That is, if a student changes his major his selection is likely to fall within the same major vocational interest area according to Holland's typology. Students often perceive that their core vocational values shift dramatically, but they really remain stable. This finding can serve as a source of stability throughout college when students are experiencing both intra and interpersonal changes.

Regarding personality variables, our findings suggest that patterns of change and/or stability may be test dependent. Student personality profiles should be interpreted with caution by counselors since results of personality trait change are mixed.

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TABLE 1

Comparison of studies using the 16PF*

Factors	Cattell(1973) Developmental Norms(Age 20) M/F	Graffam** (1967)	Cattell & Vaughan (1973)	Nichols (1967) M/F	Our Findings**
A	+/+	o	o	o/o	o
B	+/+	+	+	+/+	o
C	+/o	o		-/-	o
E	o/o	+	o	o/+	o
F	-/-	o		o/-	-
G	+/+	-	o	-/-	o
H	o/o	o		o/o	o
I	o/o	-	+	+/o	o
L	-/-	+	-	o/+	o
M	+/+	o	+	+/o	o
N	o/o	+	o	o/o	o
O	-/-	-		o/+	o
Q1	"no clear change"	+		+/o	o
Q2	o/+	+	o	+/+	+
Q3	+/o	o	o	o/o	o
Q4	-/o	-	o	o/o	o

* + increase in trait
o no change
- decrease in trait

** Reported no sex differences

TABLE 2

Comparison of Freshmen and Senior 16PF Scores.

	Freshmen		Seniors			
Factor	X	s.d.	X	s.d.	t	p
A	5.04	1.46	5.08	1.82	.13	.89
B	5.96	2.01	6.04	1.52	.19	.83
C	5.17	1.93	5.46	2.34	.68	.50
E	6.29	1.97	6.38	2.20	.15	.87
F	6.75	2.38	5.38	1.93	2.40	.02*
G	5.96	1.88	6.17	2.20	.48	.64
H	6.08	2.10	6.17	2.16	.25	.79
I	6.33	1.79	5.75	2.13	1.23	.22
L	6.38	2.22	6.46	1.67	.16	.86
M	5.17	1.58	5.21	2.23	.09	.92
N	6.21	1.59	6.29	1.68	.18	.85
Q	6.50	2.02	5.75	2.15	1.49	.14
Q1	5.13	1.78	5.50	1.82	.77	.54
Q2	5.29	1.92	6.17	1.61	2.51	.02*
Q3	5.79	2.13	6.50	2.40	1.55	.13
Q4	5.58	2.19	5.67	2.10	.19	.84

* indicates statistical significance

TABLE 3

Comparison of Freshmen and Senior JPI Scores.

	Freshmen		Seniors				
JPI Scales	$\bar{X}$	S.D.	$\bar{X}$	S.D.	t	p	
ANX	14.17	2.91	12.65	3.08	3.13	.004	*
BDI	9.48	4.18	12.48	4.16	-4.81	.000	*
CPX	9.44	2.82	10.65	3.80	-1.74	.092	
CNY	9.62	4.54	9.24	3.67	.53	.599	
ENL	11.00	3.64	12.58	4.17	-2.52	.018	*
INV	11.75	4.71	13.37	4.01	-2.04	.051	
IAF	15.72	3.22	14.55	3.26	1.90	.067	
ORG	12.58	4.20	13.48	3.35	-1.64	.112	
RSY	13.37	3.05	14.24	2.77	-1.44	.160	
RKT	6.06	4.30	7.34	4.53	-2.61	.014	*
SES	10.62	5.51	12.55	4.72	-2.77	.010	*
SCA	9.48	3.35	9.41	2.73	.12	.903	
SPT	12.24	4.41	11.37	3.79	1.21	.238	
TOL	12.37	2.94	11.79	2.74	1.12	.273	
VLO	12.87	3.61	11.68	4.06	1.51	.142	
INF	.76	.95	.34	.72	2.27	.031	*

* indicates statistical significance

TABLE 4

Comparison of Freshman and Senior SCII Scores.

Sample 1 (Class of 1982)

	Freshman		Senior			
Factor	$\bar{X}$	s.d.	$\bar{X}$	s.d.	t	p
Investigative	39.63	10.33	41.75	12.10	1.16	.25
Artistic	54.00	9.14	53.50	9.20	.30	.76
Social	50.46	8.43	51.96	10.52	.71	.50
Realistic	41.79	9.23	43.38	8.52	.93	.64
Enterprising	44.88	8.05	45.63	9.43	.41	.68
Conventional	43.33	10.80	42.83	11.16	.20	.83
AOR	35.79	13.52	39.38	14.57	1.55	.13
IE	50.21	9.09	50.42	9.52	.10	.91

Sample 2 (Class of 1983)

	Freshman		Senior			
Factor	$\bar{X}$	s.d.	$\bar{X}$	s.d.	t	p
Investigative	44.24	9.43	43.24	12.36	.51	.61
Artistic	46.75	8.83	48.06	10.28	.85	.40
Social	52.79	9.93	51.37	12.32	.73	.47
Realistic	41.65	10.92	44.96	12.04	1.70	.09
Enterprising	44.51	7.92	49.03	12.72	2.25	.03*
Conventional	47.17	9.16	50.44	11.78	1.65	.11
AOR	38.13	13.47	37.86	15.98	.12	.90
IE	52.37	11.06	48.44	14.89	1.44	.16

* indicates statistical significance

TABLE 5

Comparison of Freshmen and Senior SSHA Scores

Sample 1 (Class of 1982)

	Freshman		Senior			
Variable	X	s.d.	X	s.d.	t	p
Delay Avoidance	26.65	9.83	29.42	8.74	1.98	.056
Work Methods	29.25	9.38	33.96	8.10	3.57	.002*
Study Habits	55.33	17.89	63.38	15.40	3.02	.006*
Attitudes toward teachers	31.21	7.40	35.58	6.80	2.36	.020*
Educational Ideal	30.46	8.29	34.29	7.27	1.97	.050*
Study Attitudes	61.25	14.84	69.75	12.87	2.32	.030*
Study Orientation	116.58	30.81	130.58	27.90	2.27	.030

Sample 2 (Class of 1983)

	Freshman		Senior			
Factor	X	s.d.	X	s.d.	t	p
Delay Avoidance	25.75	8.71	29.17	7.85	2.49	.020*
Work Methods	27.72	9.69	34.24	7.34	4.82	.000*
Study Habits	53.55	17.03	63.44	13.87	4.04	.000*
Attitudes toward teachers	31.10	7.90	36.37	7.06	3.62	.000*
Educational Ideal	30.20	6.91	33.79	7.58	2.54	.020*
Study Attitudes	61.31	13.94	70.17	13.78	3.46	.000*
Study Orientation	114.86	27.77	133.62	24.95	4.35	.000*

* indicates statistical significance

TABLE 6

Summary of Direction of Factor Change in Longitudinal Studies*

o	+/o	-/o	+/o/-
A	N	C	I
H	M	F	L
Q3	E	G	O
	Q1	Q4	
	Q2		
	B		

* o no change in factor
+/o an increase or no change in factor
-/o a decrease or no change in factor
+/o/- mixed results